

**ABSTRACT OF THE DISCLOSURE**

A porous, water-absorbing fleece is made from crosslinkable biocompatible and biodegradable macromers. A solution of the macromers is frozen and vacuum-dried through lyophilization. The "fleece" formed by lyophilization is then crosslinked, for example by heat and/or an initiator of crosslinking. The resulting crosslinked material is highly water absorbent, readily swelling to at least its size before lyophilization, but retains macroporosity as well as the microporosity of a gel. Porosity and strength of the fleece can be controlled by initial polymer concentration and extent of crosslinking. The fleece materials can be used in different embodiments for applications in medicine and tissue engineering.